ECOPLUS® WATER CHILLERS

INSTRUCTION MANUAL

Thank you for purchasing an EcoPlus® Water Chiller!

To get the most out of your chiller and enjoy safe, reliable operation, please thoroughly read and understand this Instruction Manual before operating. Please keep it for future reference.

IMPORTANT: After unpacking (or accidental tipover) allow chiller to stand upright for 20 minutes before starting.

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Safety Information

To prevent injury to user, others and/or property damage, the following safety instructions must be followed. Ignoring these instructions may cause harm or damage due to faulty operation.

Seriousness is indicated by the following symbols:

WARNING!
Possible death or serious injury.

CAUTION
Possible injury or property damage.

WARNING!

- Do not exceed the rating of the power circuit or share the outlet with other appliances.
- Do not start or stop the chiller by switching the power source on/off or by plugging or unplugging the power cord.
- Always use the factory-installed 3-prong, grounded, polarized power plug and cord.
- Never attempt to operate chiller with a damaged or modified power cord.
- Do not insert or remove plug from outlet with wet hands or standing in water.
- Do not place chiller near a heat source, flammable materials or hazardous chemicals.
- Disconnect the power if strange sounds, smells or smoke come from the unit.
- Never attempt to take apart or repair the chiller yourself. Repairs must be done by factory authorized service personnel.
- Before cleaning the chiller, always turn off the power and unplug the power cord.
- Do not drink or use any water drained from the unit.

CAUTION

- Do not install chiller in closets, cabinets or other small spaces.
- Do not place chiller where water may splash or leak onto the unit.
- Never cover the intake or exhaust openings with clothes, towels or other objects.
- Use extreme caution when operating near children, the elderly and infirm.
- Never insert fingers or foreign objects into ventilation grilles or other openings.
- Do not place heavy objects on the power cord or run it under carpets and rugs.
- Do not climb, sit or stand on the chiller, or place objects on top of it.
- Clean filter every two weeks, making sure it is installed securely.
- If water enters the chiller due to a leak or spill, turn it off and disconnect the power. Contact a qualified service technician.

Features

Your EcoPlus® Water Chiller incorporates the latest in refrigeration technology and manufacturing techniques to ensure reliability and long service life. Some of these features include:

- Digital Control System for stable and accurate temperature control
- High efficiency energy use for economical operation
- Freon-free R134a refrigeration system that is safe and environmentally friendly
- Anti-corrosive, pure titanium evaporator
- Auto overcurrent protection system
- Retains settings if the unit is unplugged or in case of power outage (auto restart)

Specifications

Model	1/10 HP	1/4 HP	1/2 HP
Rated Voltage	110–120V	110–120V	110–120V
Rated Frequency	60Hz	60Hz	60Hz
Working Current	2.2A	3.0A	4.4A
Max. Refrigerated Water Volume	42 Gal. (160L)	80 Gal. (300L)	132 Gal. (500L)
Water Temp. Before Refrigeration (Ambient Temp. 86°F (30°C)	82°F (28°C)	82°F (28°C)	82°F (28°C)
Refrigeration Time (Hours)	20	20	20
Water Temp. After Refrigeration	61°F (16°C)	61°F (16°C)	64°F (18°C)
Refrigerant	R134a	R134a	R134a
Refrigerant Weight	6.35 oz. (180g)	7.76 oz. (220g)	9.17 oz. (260g)
Rate of Flow	66 - 317 GPH (250 - 1200 L/H)	264 - 660 GPH (1000 - 2500 L/H)	317 - 793 GPH (1200 - 3000 L/H)
Weight	28.7 lbs. (13 Kg)	42.5 lbs. (19.3 Kg)	43.7 lbs. (19.8 Kg)
Size	15.75 x 8.58 x 16.34 in. (400 x 218 x 415 mm)	17.13 x 11.61 x 18.5 in. (435 x 295 x 470 mm)	18.1 x 12.6 x 23.43 in. (460 x 320 x 595 mm)

NOTES:

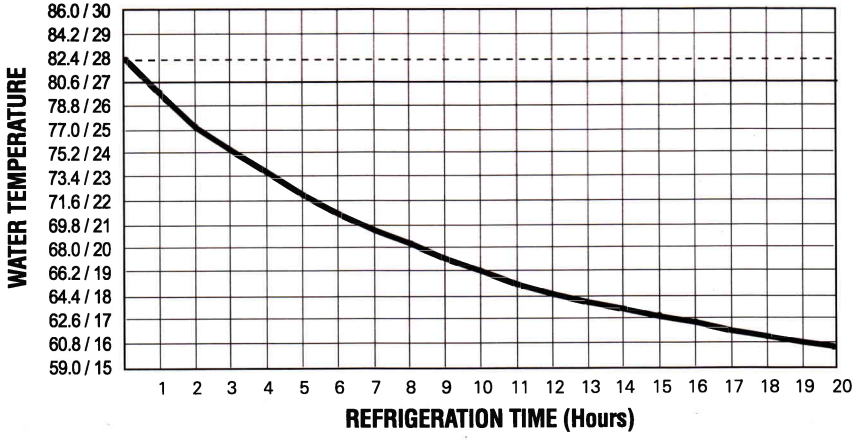
1. Rate of flow is determined by several factors, including size of pump, height of chiller above water pump, size of tubing and any kinks, clogs or other obstructions to water flow.
2. Performance tests were done with an ambient room temperature of 86°F (30°C), water temperature (before refrigeration) of 82°F (28°C), and a total water volume of 42 gallons (160L) with 1/10 HP model; 80 gallons (300L) with 1/4 HP model; and 132 gallons (500L) with 1/2 HP model (see Performance Curves on Page 4).
3. When the volume of water to be refrigerated is reduced and/or the water and ambient room temperatures are lower, cooling rate and efficiency will be increased.
4. Refrigeration efficiency is determined according to the installation location, lighting, heat source(s), pump, filter and other connecting parts. For greatest efficiency, EcoPlus® pumps and parts should be used.
5. If there is not enough air exchange in the room where chiller is installed, refrigeration efficiency may be reduced.

Specifications

PERFORMANCE CURVES

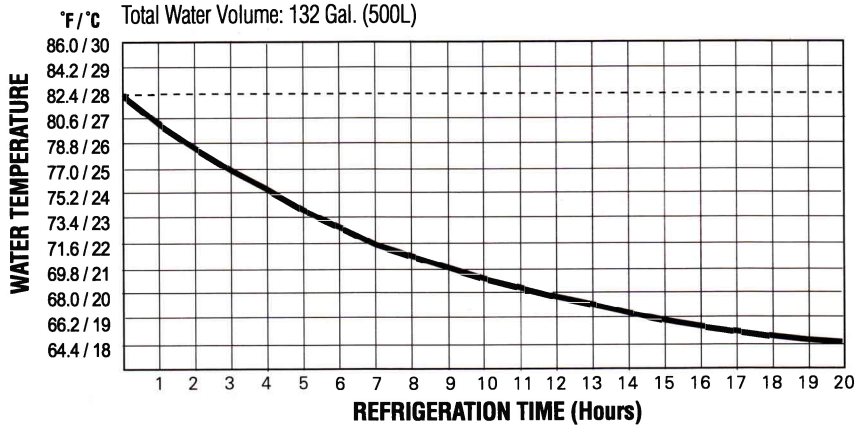
Models: 1/10 HP & 1/4 HP

Ambient Temperature: 86°F (30°C) Water Temperature (before refrigeration): 82°F (28°C)
Total Water Volume: 1/10 HP – 42 Gal. (160L), 1/4 HP – 80 Gal. (300L)



Model: 1/2 HP

Ambient Temperature: 86°F (30°C) Water Temperature (before refrigeration): 82°F (28°C)
Total Water Volume: 132 Gal. (500L)



NOTE: Lower water volumes will result in faster temperature drops.

Installation

UNPACKING THE CHILLER

Please DO NOT dispose of any packaging until you have checked that all parts are included and the chiller is operational. *In the unlikely event of missing parts or damage, contact the retailer where you purchased the unit immediately.* Do not leave children unattended with the chiller or packaging. Disposal of all materials must be carried out responsibly, safely and recycled wherever possible.

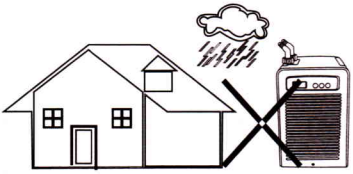
Package Contents:

- 1 Chiller Unit
- 1 Instruction Manual
- 4 Inlet/Outlet Adapters with Nuts and Rubber Seals
- 1 Spare Fuse

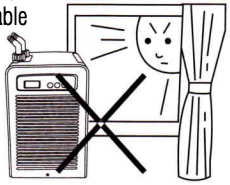
INSTALLING THE CHILLER

For best results and safest operation, install the chiller indoors in a well ventilated location.

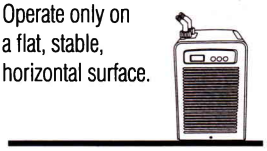
DO NOT install outdoors.



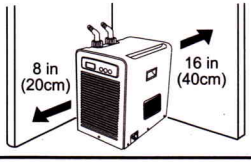
Keep out of direct sunlight and away from flammable materials, moisture, dust and any heat source.



Operate only on a flat, stable, horizontal surface.

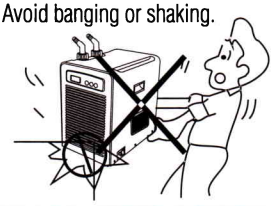


Clearance: allow at least 8" (20cm) in front; 16" (40cm) in rear.



Never cover during operation.

Avoid banging or shaking.



Do not knock the chiller over or turn it upside down – this may cause damage to the refrigeration system. If unit is tipped or knocked over, turn the power OFF. Set the unit upright and level again and wait 20 minutes before switching it back on.

IMPORTANT!

- Provide a grounded power outlet and circuit to be used only for the chiller (any electrical work must be done by a qualified electrician).
- Power source must conform to the power requirements specified on the product nameplate.
- ALWAYS disconnect the power supply when installing or cleaning the chiller.

Installation

This chiller does NOT have an internal pump for system circulation. An appropriately sized external pump is required.

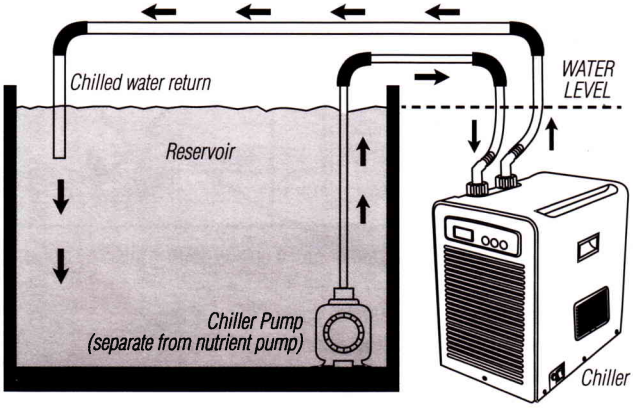
CHOOSING THE CORRECT EXTERNAL PUMP

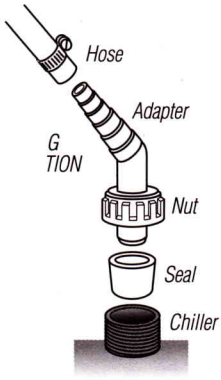
Required pump size depends on chiller model, water volume and rate of circulation. Recommended pump sizes for effective water chilling are within the following ranges:

Chiller Model	Max. Reservoir Volume Gallons *(Liters)*	Rate of Circulation – Pump Size Gallons Per Hour *(Liters Per Hour)*
1/10 HP	42 *(160)*	66 - 317 GPH *(250 - 1200 LPH)*
1/4 HP	80 *(300)*	264 - 660 GPH *(1000 - 2500 LPH)*
1/2 HP	132 *(500)*	317 - 793 GPH *(1200 - 3000 LPH)*

TYPICAL INSTALLATION

For the most effective water cooling and energy efficiency, locate chiller ***below*** water level. If chiller must be placed above reservoir level, make sure height above pump does not exceed 26 ft. (8m). For best performance, keep hoses as short as possible. The sum of all hose lengths should not exceed 25 ft. (7.6m).



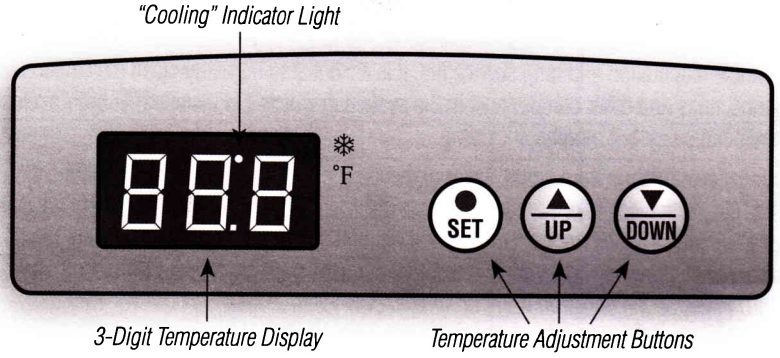


IMPORTANT! Always check the following before starting chiller:

- ✓ Water level inside the reservoir is correct and there are no leaks in any hoses or connections.
- ✓ Power supply is correct and the plug is inserted completely into the outlet.
- ✓ Double-check the whole system to make sure there are no breaks or clogs.

Operation

USING THE DIGITAL CONTROL PANEL



Setting Water Temperature: To enter a temperature setting, press the **SET** button and hold for more than 3 seconds. The previously set temperature will appear on the display. Press the **UP** or **DOWN** key to enter a new temperature setting from 37-90°F (3-32°C). To accept, press the **SET** button again (or just wait about 8 seconds and it will automatically store your new setting and revert to normal operation). The actual water temperature displays continuously while the chiller is working. *To Compare Actual and Set Water Temperatures:* Press the **SET** button once. The set temperature will appear, alternating with a display of the actual water temperature (when actual water temperature is displayed the "Cooling" indicator light goes OFF – when the set temperature is displayed the same indicator FLASHES).

Automatic Temperature Control: When the compressor stops for over 3 minutes and water temperature rises 1°F above the set temperature, the chiller will automatically restart. Once the set water temperature is reached, the "Cooling" indicator light will go off and the compressor will stop. NOTE: The "Cooling" indicator light will also flash if any protection device (see below) is activated for at least 3 minutes.

SPECIAL FUNCTIONS AND PROTECTION DEVICES

- ***Temp. Display Adjustment:*** If necessary, the display of actual water temperature can be adjusted 2.4°F (1.5°C) up or down. Press the **UP** and **DOWN** keys *at the same time* for 6 seconds until the numerical display flashes. Then, press the **UP** or **DOWN** keys to adjust.
- ***Compressor Protection:*** If the compressor somehow becomes overloaded, a protection device will automatically shut it off, then attempt a restart after about 3 minutes.
- ***Sensor Circuit Protection:*** If the water temperature sensor has an open or broken circuit, the chiller will shut down and a "P1" or "P2" error message will be displayed.

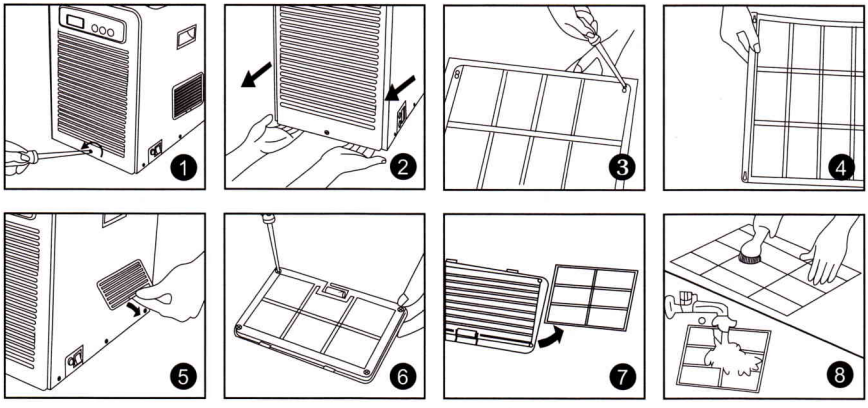
Cleaning & Storage

CLEANING THE CHILLER

Always make sure unit is unplugged before performing any cleaning!

For safe, efficient operation and long service life, it is essential to regularly clean the chiller and all hoses, connections and other components in the system in which it is installed. Thorough cleaning is recommended every 1-2 months, including:

- Rinse collected debris from filters, external reservoir pump, all inlet and outlet connections, hoses, etc., with clear, lukewarm water. Soap, detergent or bleach is NOT recommended because any remaining residues can contaminate the nutrient solution. The chiller housing, digital control panel, power switch and other external surfaces must be cleaned with a soft, dry cloth. *NEVER immerse the chiller in water or spray it down with a hose!*
- Clean air filters every 2 weeks:
    1. Loosen screw on front cover, turning counterclockwise (Fig. 1).
    2. Gently pull cover toward you to remove (Fig. 2).
    3. Loosen screws on attached filter and remove (Fig. 3 & 4).
    4. Lift bottom clips and pull out to remove side filters (Fig. 5 – *1/4 & 1/2 HP Models only*).
    5. Loosen screws on attached filters and remove (Fig. 6 & 7)
    6. Remove dust with a brush or vacuum cleaner, or rinse well in lukewarm water (Fig. 8). Make sure filters are thoroughly DRY before reinstalling them.



STORING THE CHILLER

Disconnect chiller from the system. Gently tilt the unit to drain water out through the inlet and outlet connections. DO NOT INVERT CHILLER TO DRAIN! Clean and dry filters, wipe down external surfaces with a soft cloth, cover with plastic bag, insert into carton and store in a safe, dry place.

Troubleshooting

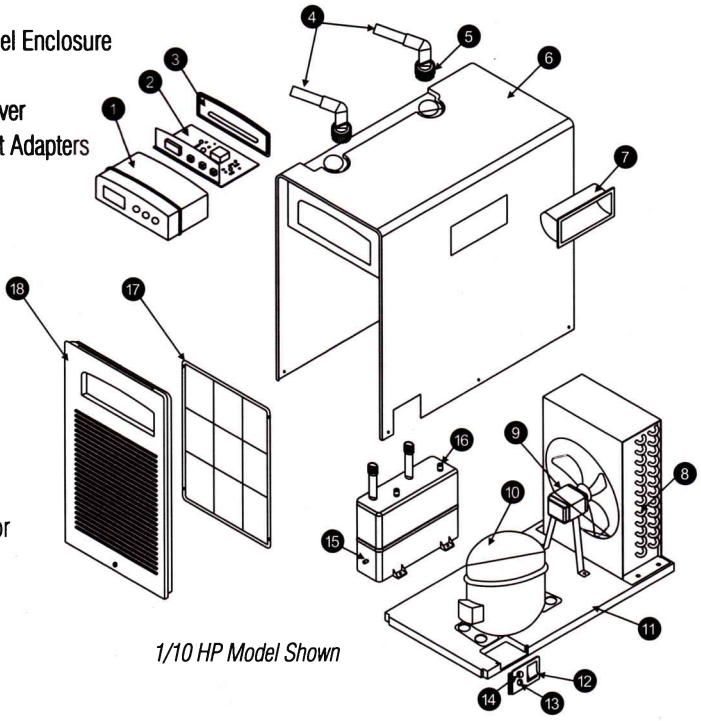
Before calling service, check the troubleshooting chart below for solutions to the most common problems.

SYMPTOM	CAUSE	SOLUTION
Chiller doesn't run Display is blank	Power is not turned on	Turn on the power
	Not plugged all the way in	Be sure the power cord is fully plugged in
	Fuse has blown	Change fuse
Chiller keeps turning itself on and off	Connected to wrong voltage and frequency	Apply to correct power source according to the nameplate
	Protection device has been activated	A. Check water circulation B. Check ventilation around unit. If heat is not accumulating, wait 3 minutes and unit will automatically restart
Water not cooling enough (or not at all)	Water temperature setting is too high	Lower water temperature setting
	Total water volume too high	Reduce water volume
	Air filters are clogged with dust	Clean air filters as directed on Page 7
	Not enough refrigerant	Have qualified personnel replenish refrigerant
	Compressor runs normally, but fan stops running and unit can't dissipate heat	Fan may need to be replaced by qualified service personnel
Unit is noisy and/or rattles	The base is not flat	Mount it on a flat base

Parts List & Wiring Diagram

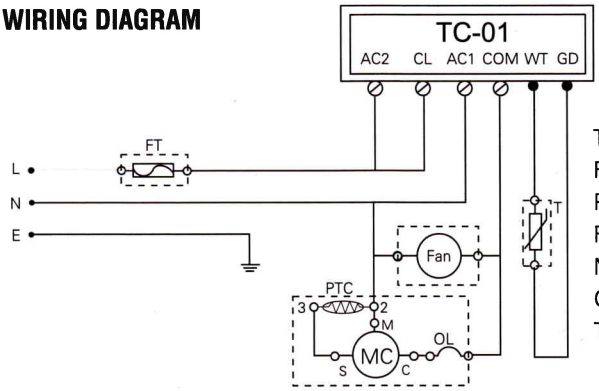
PARTS LIST

1. Digital Control Panel Enclosure
2. Circuit Board
3. Enclosure Back Cover
4. Water Inlet & Outlet Adapters
5. Nut
6. Housing
7. Handle
8. Condenser
9. Fan
10. Compressor
11. Base
12. Power Switch
13. Power Input
14. Fuse
15. Water Temp. Sensor
16. Water Tank
17. Intake Air Filter
18. Front Cover



1/10 HP Model Shown

WIRING DIAGRAM



TC–01 Temperature controller
FT Fuse
PTC Motor starter
FAN Fan
MC Compressor
OL Motor protector
T Water temperature sensor

Limited Warranty

Sunlight Supply,® Inc. One-Year Limited Warranty: The EcoPlus® Chiller covered in this manual is warranted under normal use for one year after purchase date. Any part determined defective in material or workmanship can be returned to an authorized service location designated by Sunlight Supply, shipping prepaid, and will be repaired or replaced at the option of Sunlight Supply.

Limitation of Liability: To the extent allowable under applicable law, Sunlight Supply's liability for consequential and incidental damages is expressly disclaimed. Sunlight Supply's liability in all events is limited to and shall not exceed the purchase price paid.

Warranty Disclaimer: Sunlight Supply provides product information in this literature for the sole purpose of identification, and does state or imply that the products are merchantable or fit for a particular purpose, or that the products will conform to the descriptions.

Product Suitability: Many jurisdictions have codes and regulations governing sales, construction, installation and/or use of products for certain purposes, which may vary from those in neighboring areas. While Sunlight Supply attempts to assure that its products comply with such codes, it cannot guarantee compliance, and cannot be responsible for how the product is installed or used. Before purchase and use of a product, review the product applications, and all applicable national and local codes and regulations, and be sure that the product, installation, and use will comply with them.

Detach and return

WARRANTY REGISTRATION FORM

Your EcoPlus® Chiller from Sunlight Supply,® Inc. is covered for one (1) full year against manufacturer defects. The warranty information below must be filled out and mailed back with a copy of the purchase receipt for warranty to be in effect. Abuse, neglect, misuse or mis-application of the product will void the warranty.

Select Power Model: ☐ 1/10 HP ☐ 1/4 HP ☐ 1/2 HP

EcoPlus® Chiller _____ / /

PRODUCT NAME SERIAL NUMBER DATE OF PURCHASE

NAME _____

ADDRESS _____

CITY / STATE/ ZIP _____

( )

PHONE EMAIL ADDRESS

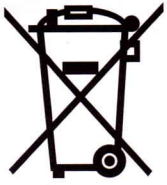
Where purchased: _____

STORE NAME

Mail this Product Registration Form within 15 days of purchase to:

Sunlight Supply,® Inc., EcoPlus® Warranty Dept.
5408 NE 88th Street - Bldg A, Vancouver WA 98665 USA

PLEASE BE RESPONSIBLE



DO NOT dispose of this product in the trash, on the landscape or into any unsorted waste stream! It may contain hazardous substances that can leach into groundwater and find their way into the food chain. This unit contains VALUABLE RESOURCES that are easy to recycle and re-use. Services available may include:

A. Municipal Collection Systems: Most cities and towns have recycling programs where electronic waste can be turned in for recycling free of charge.

B. Retailer Return: When buying a new product, many retailers will take back an old product free of charge.

C. Manufacturer Return: Many manufacturers accept old products for recycling free of charge.

D. Scrap Dealers: Many scrap dealers will buy old electronics or take them free of charge.

ECO PLUS®

www.ecoplususa.com

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